CSE 4321, HW 8

Topic: Regression Testing

Note that for the following problems, you must show intermediate steps  
in order to get full credits.

1. (20 points) Suppose program P has been executed against a test  
suite T consisting of six tests, t1, t2, t3, t4, t5 and t6. A total  
of six entities are covered by the tests as shown in the following  
table: 0 (or 1) in a column indicates that the corresponding entity is  
not covered (or covered). The entities could be basic blocks in the  
program, functions, def-uses, or any other testable element of  
interest. Follow procedure CMIMX to find the minimal cover set for  
the six entities.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 |
| t1 | 0 | 1 | 0 | 1 | 0 | 1 |
| t2 | 1 | 0 | 0 | 0 | 1 | 0 |
| t3 | 1 | 1 | 0 | 1 | 0 | 0 |
| t4 | 1 | 0 | 1 | 0 | 0 | 0 |
| t5 | 0 | 1 | 0 | 1 | 1 | 0 |
| t6 | 1 | 0 | 0 | 0 | 0 | 0 |

2. (20 points) Suppose that there is an application P consisting of 8  
methods, m1 .. m8. Also suppose that there is a regression-test set T  
= {t1, t2, t3, t4, t5}. The methods covered by each test in T are  
listed in the following table. Follow procedure PrTest to obtain a  
prioritized list of tests based on residual coverage.

|  |  |  |
| --- | --- | --- |
| Test (t) | Methods covered (cov(t)) | |cov(t)| |
| t1 | m1, m3, m5, m6, m8 | 5 |
| t2 | m1, m7, m8 | 3 |
| t3 | m1, m2, m3, m5 | 4 |
| t4 | m1, m2, m3, m4 | 4 |
| t5 | m1, m5, m8 | 3 |